

bioremediation warrants further research, neither is planning a significant research program of its own.¹¹⁸ The Exxon Corp. so far is an important exception to the general absence of oil industry activity. Exxon, by virtue of its Alaska and New Jersey experiences, has more familiarity with fertilization techniques than other oil companies and, at least for certain types of environment, has concluded that their use is merited.

REGULATORY ISSUES

Several provisions of the Federal Water Pollution Control Act (the Clean Water Act (CWA)), as recently amended by the Oil Pollution Act of 1990 (OPA), affect or potentially affect the use of bioremediation products for marine oil spills. The CWA specified development of a National Contingency Plan (NCP) for the removal of oil and hazardous substances. The OPA calls for the revision of parts of this plan. It requires EPA to prepare a list of dispersants, other chemicals, and *other spill mitigating devices and substances* that may be used to carry out the plan, and to identify the waters in which they may be used and the quantities that can be used safely.¹¹⁹ Thus, before a bioremediation product could be considered for use in response to an oil spill, it would, at minimum, have to be on this list. Inclusion on the list implies that certain minimum safety standards have been met but does not necessarily imply that the product is either effective or nontoxic for specific applications. In general, additional testing would be required to evaluate further both efficacy and toxicity.

Subpart J of the National Contingency Plan governs the use of biological additives (as well as dispersants and other chemical agents) for marine oil spills. It identifies several options that can be used to obtain authorization for the application of a chemical or biological agent to combat a spill. Section 300.910e provides for preauthorization of the use of regulated agents through an advance planning proc-

ess. Thus, on-scene coordinators (OSCs) are authorized to use biological additives that have been preapproved by Regional Response Teams. EPA encourages preplanning and believes that the deliberations of Regional Response Teams provide the best forum for considering authorizations.¹²⁰

If a preauthorized plan has not been established or is not applicable to the specific circumstances of a spill, the OSC must obtain the concurrence of the EPA representative to the Regional Response Team, the affected State(s), and impractical, the Department of the Interior and Department of Commerce natural resource trustees, before using biological or other agents. An exception occurs when the OSC determines that quick action is necessary to prevent or substantially reduce a hazard to human life; in that case, the OSC may unilaterally authorize the use of any product, including those not on the NCP product schedule. Continued use of the product once the threat has been mitigated is subject to normal concurrence procedures.¹²¹

Another statute that may have a bearing on bioremediation technologies is the Toxic Substances Control Act (TSCA). The TSCA is intended to regulate the manufacture of substances that may pose a risk to human health or the environment. The Act applies to *chemical* substances generally, which EPA has interpreted to include microorganisms. Currently, however, manufacturers of microbial products are not required to satisfy Section 5 of TSCA and notify EPA regarding the use of naturally occurring microorganisms, and EPA has no plans to require notification.¹²² Genetically engineered organisms, however, would be subject to notification and review. EPA has not had the opportunity to conduct product reviews of genetically engineered organisms, but a few companies are considering their use. EPA expects to publish a draft biotechnology rule in the *Federal Register* by late 1991.

¹¹⁸The Marine Spill Response Corp. (MSRC), formerly the Petroleum Industry Response Organization, was established after the Exxon Valdez oil spill and is intended to give the private sector an improved capability to respond to major oil spills around the country. MSRC has a sizable research budget.

¹¹⁹Oil Pollution Act of 1990, section 4201(b). This schedule maybe obtained from EPA's Emergency Response Division. The list currently contains 30 bioremediation products and includes both chemical fertilizers and microbial products.

¹²⁰J. Cunningham, U.S. Environmental Protection Agency, presentation to the Treatability Protocol Subcommittee of the bioremediation Action committee, Oct. 15, 1990.

¹²¹Ibid.

¹²²E. Milewski, U.S. Environmental protection Agency, Office for Pesticides and Toxic Substances, personal communication Mar. *6, 1991.